statement that degenerated fibres from this source pass to the cranial nerve roots through the posterior longitudinal bundles, and to the antero-lateral columns of the cord by way of the fillet.

With regard to the well-marked antero-lateral tract, which Marchi describes as degenerating throughout the whole length of the spinal cord, it is held, in conjunction with Ferrier and Turner, that no such tract degenerates after lesions limited to the cerebellum. And in support of this negative view being probably the correct one, is adduced the fact that Ferrier and Turner found a similar tract after injury to Deiter's nucleus, as did Mott also, after injury to the posterior column nuclei.

XXI. "A Contribution to the Study of (i) some of the Decussating Tracts of the Mid- and Inter-brain, and (ii) of the Pyramidal System in the Mesencephalon and Bulb." By Rubert Boyce, M.B., Assistant Professor of Pathology in University College, London. Communicated by Professor Victor Horsley, F.R.S. Received June 9, 1894.

(From the Pathological Laboratory of University College, London.)

(Abstract.)

The present paper is supplementary to a paper communicated to the Royal Society, February, 1894, entitled a "Contribution to the Study of the Descending Degenerations in the Brain and Spinal Cord." It is based upon a study of the changes found in the brains and spinal cords of the animals (cats) used for that research.

1. It is found that hemisections of the mesencephalon through the superior quadrigeminal region is followed by degeneration of *Meynert's commissure* and *Forel's decussation*, situated in front of the third ventricle and behind the optic chiasma.

The degenerate fibres which go to form the *decussation of Forel* are large medullated fibres which ascend from the seat of injury in the tegmental region, proceed forwards and anteriorly, and then curve round in front of the third ventricle, between the latter and Meynert's commissure. They then pass backwards, between the optic tract and the internal capsule (*pes pedunculi*), and appear to end in the lateral thalamic region. This description agrees with that given by Darkschewitch and Pribytkow, who, however, state that the fibres terminate in the lenticular nucleus; by the Marchi method, on the other hand, the Author has traced the fibres past this nucleus, and across the internal capsule into the thalamus.

The fibres appear to be part of the fibres constituting the "fountain (ventral) decussation of Forel."

Meynert's Commissure.—This commissure is also invariably found degenerate, but the author has been unable to determine its exact mode of origin and termination. It would appear that the commissure had a wide field of origin, numerous fibres either passing through or arching round the *pes pedunculi* on its dorsal aspect to form it. The fibres pass to the opposite side behind the chiasma, and then descend slightly, and appear to diminish in number; they do not appear to enter the *corpus Luysii;* a few of the fibres may penetrate with the optic tract into the thalamic region, and intermingle with the superficial fibres of the superior fillet (compare Darkschewitch and Pribytkow, and more recently Bechterew in "Die Leitungsbahnen").

2. *Posterior Commissure.*—The degenerate fibres which cross in the commissure or in the roof of the Aqueduct of Sylvius, and which result from a complete unilateral lesion of the quadrigeminal area, have not a long course, but terminate, for the most part, in the opposite corpora quadrigemina, dorsal and lateral aspects of the Sylvian grey matter, or posterior portion of the tegmentum.

Degenerate fibres have never been traced into the posterior longitudinal bundles, as has been asserted by some authors. A special group of large superficial degenerate fibres in the anterior portion of the roof of the aqueduct have been traced from the internal capsule across the thalamus into the stalk of the superior corpus quadrigeminum and then across the commissure. These fibres alone are found degenerate in the commissure when the anterior one-third of the cat's hemisphere is removed.

3. In cases where the motor region is completely removed in the cat, degenerate fibres are found which leave the pyramidal system in the pes pedunculi, crusta, pons, and medulla. The fibres which leave the pes pedunculi and crusta pass backwards to the quadrigeminal region of the same side, those which leave the pyramid in the medulla decussate across the raphe to the opposite side, and lose themselves in the tegmentum; they have not been traced directly ending in the motor nuclei of the cranial nerves. Muratoff has described a group of these fibres in the medulla, and supposes that they are the cortical motor fibres of the VIIth; the author, on the other hand, has not found the fibres limited alone to this region. The decussation of the pyramid is thus not confined to the upper cervical region, but is gradually taking place during the descent of the pyramid through the bulbar segments.

XXII. "A Magnetic Survey of the British Isles for the Epoch January 1, 1891." By A. W. RÜCKER, F.R.S., and T. E. THORPE, F.R.S. Received June 21, 1894.

[Publication deferred.]

XXIII. "On the Different Forms of Breathing." By WILLIAM MARCET, M.D., F.R.S. Received June 12, 1894.

[Publication deferred.]

The Society adjourned over the Long Vacation to Thursday, November 15.

Presents, June 21, 1894.

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